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REVIEW OF THE FISHES OF THE GENERA POLYIPNUS AND ARGYROPELECUS (FAMILY STERNOPTICHIDAE),[1] WITH DESCRIPTIONS OF THREE NEW SPECIES

By LEONARD P. SCHULTZ

THIS study is based on the specimens of fishes of the family Sternoptichidae in the genera *Polyipnus* and *Argyropelecus* in the collections of the United States National Museum. The term length herein refers to the standard length, or the distance from the tip of the snout to the base of the midcaudal fin rays. In the literature cited in synonymy, all publications have been examined except papers by those authors whose names are preceded by an asterisk (*).

Drawings for the figures, except figure 42, were made by Jane Roller.

Genus POLYIPNUS Günther

Polyipnus GÜNTHER, *Challenger* Reports, vol. 22, pt. 57, p. 170, 1887 (*P. spinosus* Günther).

Acanthopolyipnus (subg.) FOWLER, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, p. 257, 1934 (*Polyipnus fraseri* Fowler).

This genus may be recognized by the following characters: A pair of diverging spines just in front of the origin of the soft dorsal fin; the absence of a dorsal blade; ten abdominal photophores; three supra-abdominal photophores; a lateral photophore; three suprapectoral photophores; anal fin undivided.

Figure 42 shows diagrammatically the positions and names of the various series of photophores as used in this paper.

[1] See Gill, 1884, for early history of names in references to this family.

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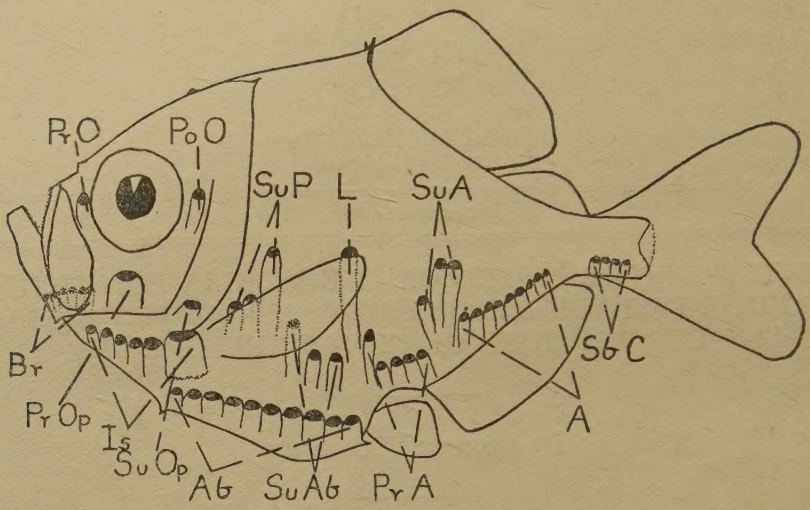

FIGURE 42.—Diagrammatic sketch of *Polyipnus* showing the names applied to the various series of photophores found in *Argyropelecus* and *Polyipnus* as used in this paper: *A*, Anal organs; *Ab*, abdominal organs; *Br*, branchiostegal organs; *Is*, organs on isthmus; *L*, lateral organ; *PoO*, postorbital organ; *PrA*, preanal organs; *PrO*, preorbital organ; *PrOp*, preopercular organ; *SbC*, subcaudal organs; *SuA*, supra-anal organs; *SuAb*, supra-abdominal organs; *SuOp*, subopercular organ; *SuP*, suprapectoral organs.

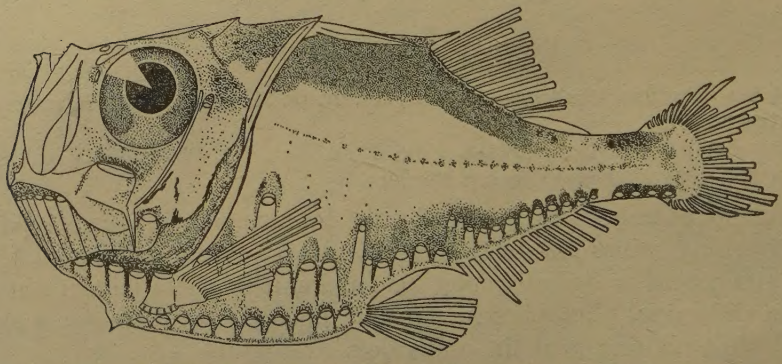

FIGURE 43.—*Polyipnus unispinus*, new species: Holotype (U. S. N. M. no. 103153).

POLYIPNUS UNISPINUS, new species

FIGURE 43

Holotype.—U.S.N.M. no. 103153, 20.5 mm in standard length, *Albatross* station 5451, latitude 13°22′22″ N., longitude 124°00′48″ E., depth 380 fathoms, June 5, 1909.

Paratypes.—Five specimens from the same collection, U.S.N.M. no. 103029, 16 to 19 mm.

Description.—The description is based on the holotype and the five paratypes. The counts and measurements given outside the parentheses were taken from the holotype, and those inside the parentheses were taken from the 5 paratypes, respectively. All measurements are expressed in hundredths of the standard length. The dorsal fin is preceded by a pair of short diverging spines, the number of dorsal soft rays are 12 (11, 12, 11, 12, 12); anal rays 14 (13, 14, 13, 14, 13); pelvic fin rays 7 (probably always 7); pectoral rays 12 (13, —, 13, 15, 13); gill rakers on anterior margin of first gill arch 4+8 (4+7, 4+7, 4+8, 4+7, 4+7); abdominal plates always 10. The lanterns (fig. 42) always occur in pairs on holotype and paratypes in the following numbers: Branchiostegals always 6; isthmus always 6; abdominals always 10; anals 12 (11, 13, 11, 11, 11), the first two or three are much smaller than those that follow and usually a trifle above the posterior ones; preanals always 5, the first usually smaller than the 4 posterior ones; suprapectorals always 3; subcaudals always 4; supra-abdominals always 3; preorbital always 1; subopercular always 1; lateral organ always 1, this is a small photophore lying above the first preanal organ. Length of head 31.6 (32.6, 30.3, 31.6, 30.6, 31.2); length of snout 7.8 (8.6, 8.3, 7.9, 7.1, 8.7); width of bony interorbital 5.9 (5.7, 5.6, 5.3, 5.9, 6.2); horizontal diameter of eye 15.6 (17.2, 16.7, 15.8, 17.7, 16.9); length from tip of snout to rear margin of maxillary 21.0 (24.2, 23.4, 22.6, 21.2, 21.9); length from snout to origin of soft dorsal 56.2 (57.2, 55.6, 60.5, 54.7, 52.0); greatest depth of body 48.8 (51.5, 50.0, 48.4, 53.0, 50.0); least depth of caudal peduncle 10.3 (9.7, 11.1, 10.5, 11.2, 11.3); length of caudal peduncle 19.5 (17.2, 22.2, 21.2, 22.9, 18.8); length of longest gill raker on first gill arch 7.8 (8.6, 8.3, 7.9, 8.8, 7.5); length of abdomen 39.1 (34.3, 38.9, 33.2, 38.1, 34.4); distance from origin of soft dorsal to base of caudal fin rays 44.0 (45.7, 47.3, 47.4, 47.1, 43.7); length of the posttemporal (nuchal) process measured from nape to posterior tip of the spine 22.0 (24.0, 23.4, 21.2, 20.6, 21.9).

Remarks.—This new species differs from all other members of the genus *Polyipnus* that lack the supra-anal organs by the single posttemporal spine without serrations below and the fewer gill rakers, 4+7 or 8 instead of 7 to 10+12 to 18. The following synoptic key, based upon specimens in the United States National Museum,

should enable the reader to distinguish each species referred to the genus *Polyipnus*. Table 1 presents comparative data on the several species of the genus.

The name *unispinus* refers to the single long posttemporal spine.

TABLE 1.—*Counts made on various species of* Polyipnus

Species	Dorsal soft rays							Anal rays [1]							Pectoral rays			
	10	11	12	13	14	15	16	11	12	13	14	15	16	17	12	13	14	15
fraseri	1							1									1	
nuttingi			3	4								2	4	1	1	5		
unispinus		2	4							3	3				1	3		1
spinosus			1	6	1						1	4	5	1	1	3	2	2
asteroides				1	4	1								6			4	1
laternatus [2]					1								1					1
triphanos			3											3			2	

Species	Gill rakers on first gill arch																	
	4+7	4+8	5+9	5+10	5+11	7+12	7+13	7+14	7+15	7+16	7+17	8+14	8+15	8+16	8+17	9+17	9+18	10+17
fraseri						1												
nuttingi								1	1	2			3					
unispinus	4	2																
spinosus						1	1		1	1	1		2	1	1	1	1	1
asteroides								1		1			2	3				
laternatus [2]												1						
triphanos			1	1	3													

Species	Total gill rakers on first gill arch																	Photophores in the anal series									
	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	4	5	6	7	8	9	10	11	12	13	14	15
fraseri									1									1										
nuttingi											1	1	5												5	2			
unispinus	4	2																							4	1	1		
spinosus								1	1		1	3	2	1	1	2									1	4	3	2	
asteroides											1		3	3									5						
laternatus [2]												1													1	2			
triphanos				1	1	3																1	2						

[1] All rudiments counted as one ray.

[2] Data from Garman, 1899, and Parr, 1937.

POLYIPNUS ASTEROIDES, new species

FIGURE 44

Polyipnus laternatus NORMAN, *Discovery* Reports, vol. 2, p. 305, fig. 14, 1930.—JESPERSEN, *in* Joubin, Faune ichthyologique de l'Atlantique nord, No. 15, 1934.—FOWLER, Bull. Amer. Mus. Nat. Hist., vol. 70, no. 2, p. 1206, 1936.

Holotype.—U.S.N.M. no. 102979, 39.5 mm in standard length, First Johnson-Smithsonian Deep-sea Expedition, 1933, tin tag no.

440, station 81, latitude 18°29′45″ N., longitude 65°25′50″ W., to latitude 18°35′30″ N., longitude 65°23′54″ W., depth 200 to 400 fathoms, February 26, 1933.

Paratypes.—U.S.N.M. no. 102978, 4 specimens, lengths 26 to 39.5 mm, collected by the First Johnson–Smithsonian Deep-sea Expedition, 1933, tin tag no. 516, station 83, latitude 18°32′54″ N., longitude 65°23′42″ W., to latitude 18°32′15″ N., longitude 65°18′45″ W., depth 250 to 320 fathoms, February 26, 1933. U.S.N.M. no. 86131, length 20 mm, *Grampus* station 10482, Gulf of Mexico, depth 500 to 0 meters, March 23, 1917 (this specimen is in such poor condition that measurements and certain counts were not made).

Description.—The description is based on the holotype and the five paratypes. The counts and measurements given outside the parentheses were taken from the holotype and those inside the paren-

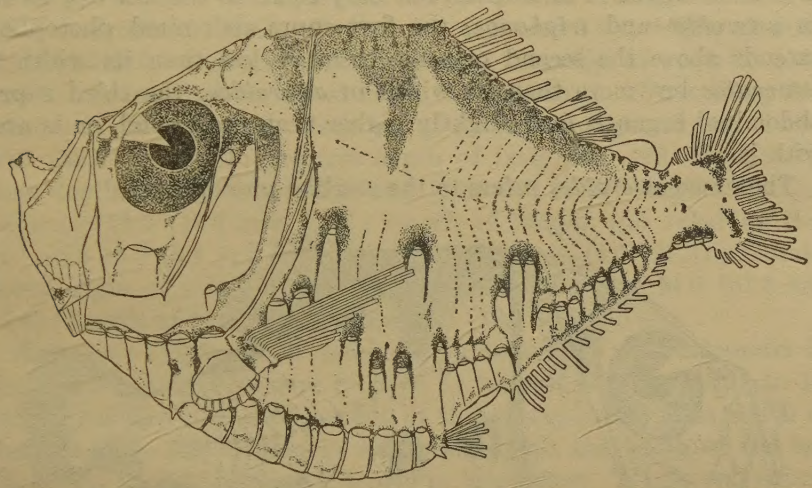

FIGURE 44.—*Polyipnus asteroides*, new species: Holotype (U.S.N.M. no. 102979).

theses, representing the minimum and maximum, were taken from the paratypes. All measurements are expressed in hundredths of the standard length. Standard lengths 39.5 (26 to 39.5 mm); the number of dorsal soft rays are 14 (12 to 15); anal rays 16 (17); pelvic fin rays 7 (7); pectoral fin rays 14 (14 to 15); gill rakers on anterior margin of first gill arch 8+16 (7+14 to 16−8+15 to 16); abdominal plates 10 (10).

The lanterns occur as follows: Branchiostegals always 6; isthmus always 6; abdominals always 10; anals 9 (9); preanals always 5; supra-anals always 3; suprapectorals always 3; subcaudals always 4; supra-abdominals always 3; preopercular, postorbital, preorbital, subopercular, and lateral organs always 1 each. Length of head 35.5 (34.2 to 35.5); length of snout 8.9 (8.7 to 9.3); width of bony

interorbital 6.3 (6.6 to 7.2); horizontal diameter of eye 16.4 (16.7 to 17.2); length from tip of snout to rear margin of maxillary 29.1 (29.0 to 30.4); length from tip of snout to origin of soft dorsal 55.8 (52.2 to 57.1); greatest depth of body 69.6 (72.2 to 77.8); least depth of caudal peduncle 11.6 (12.6 to 15.0); length of caudal peduncle, posterior base of anal to base of middle caudal rays, 11.9 (14.5 to 16.0); length of longest gill raker on first gill arch 10.1 (8.7 to 10.1); length of abdomen 39.3 (37.7 to 40.0); distance from origin of soft dorsal to base of caudal fin rays 49.4 (52.2 to 55.8); length of base of dorsal fin 28.4 (27.6 and 29.1).

Remarks.—This species differs from *laternatus* in the number of anal photophores, 9 instead of 11 or 12, and in their size and arrangement. If Parr's (1937, p. 56) figure 22 is correctly drawn, then the width of the first three is equal to the width of the last 5 or 6 anal organs in *laternatus*, but only equal to the last 3¾ to 4¼ in *asteroides* and *triphanos;* the first supra-abdominal photophore extends above the second organ a distance less than its width in *laternatus* but more than its width in *asteroides;* the third supra-abdominal organ is only slightly higher than the second, or is even with it.

The name *asteroides* refers to the starlike photophores.

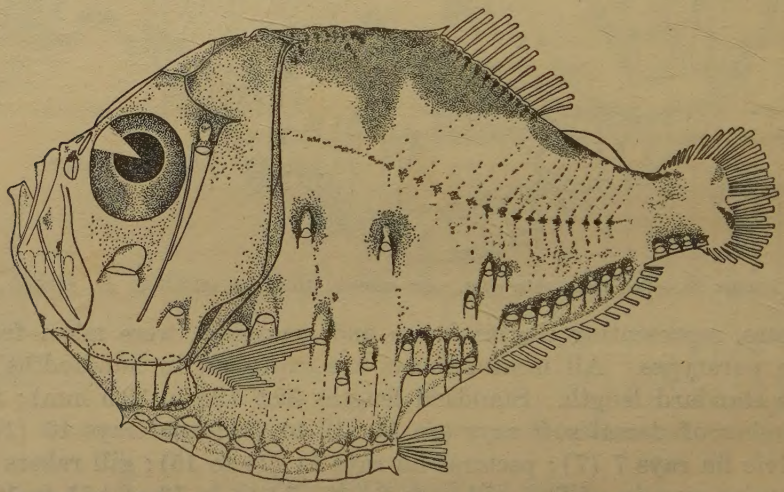

FIGURE 45.—*Polyipnus triphanos,* new species: Holotype (U.S.N.M. no. 103027).

POLYIPNUS TRIPHANOS, new species

FIGURE 45

Holotype.—U.S.N.M. no. 103027, 20 mm in standard length, *Albatross* station 5368, latitude 13°35′30″ N., longitude 121°48′ E., 181 fathoms, February 23, 1909.

Paratypes.—U.S.N.M. no. 103028, 2 specimens, 17.5 and 21.5 mm, *Albatross* station 5500, latitude 8°37′45″ N., longitude 124°36′45″ E., 267 fathoms, August 4, 1909.

Description.—The description is based on the holotype and the two paratypes. Counts and measurements made as in other two new species. Standard lengths 20 (17.5 and 21.5 mm); the number of dorsal soft rays are 12 (12 and 12); anal rays 17 (17); pelvic fin rays probably 7; pectoral fin rays 14 (14); gill rakers on anterior margin of first gill arch 5+9 and 5+10 (5+11); abdominal plates 10 (10). The lanterns occur as follows: Branchiostegals always 6; isthmus always 6; abdominals always 10; anals 9 (8 or 9), the last organ usually rudimentary and very small; preanals always 5; supra-anals always 3; suprapectorals always 3; subcaudals always 4; supra-abdominals always 3; preopercular, postorbital, preorbital, subopercular, and lateral organs always 1 each. Length of head 35 (33.5 and 34.3); length of snout 7.5 (6.9 and 7.9); width of bony interorbital 6.5 (5.7 and 7.0); horizontal diameter of eye 17.5 (16.3 and 17.1); length from tip of snout to rear margin of maxillary 29.0 (28.0 and 28.5); length from tip of snout to origin of soft dorsal 60.0 (52.3 and 57.2); greatest depth of body 70.0 (62.9 and 64.0); least depth of caudal peduncle 14.0 (11.6 and 12.0); length of caudal peduncle 13.0 (13.1 and 14.0); length of longest gill raker on first gill arch 10.0 (8.4 and 8.6); length of abdomen 42.0 (37.2); distance from origin of soft dorsal to base of caudal fin rays 54.0 (51.3 and 51.4); length of base of dorsal fin 20.0 (16.3 and 17.1).

Remarks.—This species differs from *laternatus* and *asteroides* in the number of gill rakers, 5+9 to 11 instead of 7 to 8+14 to 16, and in the size and arrangement of the photophores. The width of the first three anal organs in *triphanos* equals the width of the last 3½ to 4¼ organs, instead of 5 or 6 in *laternatus*. The second supra-abdominal photophore is not in line with the third but is below it a distance equal to its width, and the second is below the first a distance equal to 1½ to 2 times the width of the first.

The name *triphanos* refers to the characteristic position of the three supra-abdominal photophores.

SYNOPSIS OF THE SPECIES OF POLYIPNUS

*a*¹ Minute teeth present on vomer and palatines; posttemporal process of one main spine, which is smooth and shorter than diameter of eye, usually not longer than diameter of pupil; at anterior end of anal series of photophores are 3 supra-anal photophores located much above general line of anal organs.

*b*¹. Anal organs 11 or 12; gill rakers on first gill arch about 8+14; width of first 3 anal organs equal to width of last 5 or 6 anal organs; first and

third supra-abdominal organs nearly in line, second is slightly below them, the distance not more than half width of first. Range: Atlantic (West Indies)_____laternatus Garman, 1899

b^2. Anal organs 7 to 9.

c^1. Gill rakers on first gill arch 7 or 8+14 to 16; width of first 3 anal organs equal to width of last 3¾ to 4¼ anal organs; last or third supra-abdominal organ in line with middle organ or only slightly above it; first organ extends above second and third a distance equal to 1 or 1½ times its width. Range: Atlantic (Bahama Islands; Gulf of Mexico)_____asteroides, new species

c^2. Gill rakers on first gill arch 5+9 to 11; width of first 3 anal organs equals width of last 3½ to 4¼ anal organs; last or third supra-abdominal organ above middle organ by a distance equal to its width; first organ extends above second organ a distance equal to 1½ to 2 times its width. Range: Philippine Islands_____triphanos, new species

a^2. Minute teeth present on vomer but absent on palatines; at anterior end of anal series of photophores no organ is located high above general line of these organs.

d^1. Posttemporal process of 3 spines, the middle one variable in length and position, sometimes almost lacking but never longer than upper spine, upper spine usually almost straight, pointing backward, variable in length, often shorter than diameter of pupil or as long as diameter of eye, upper spine always longer than lower spine, the latter usually curved downward.

e^1. Anal photophores about 12 to 15 in adults; photophores along ventral margin of body usually without definite spaces between the various series in large adults, while in smaller fish, between anal and subcaudal series, there may be no space or space may equal width of 1 to 3 of subcaudal organs, depending on size of specimen. Range: Pacific (Japan; Philippines; Celebes Sea; Strait of Macassar; Great Australian Bight); Atlantic (Gulf of Guinea ?; Gulf of Mexico ?); Indian Ocean (Andaman Sea; Bay of Bengal)_____spinosus Günther, 1887

e^2. Anal photophores 4 in adults; photophores along ventral margin of body with a definite space between preanal and anal series and another space between anal and subcaudal series, both spaces equal to or greater than length of subcaudal series. Range: Philippine Islands_____fraseri Fowler, 1934

d^2. Posttemporal process of one main spine, which may be smooth or very rough, spiny, or toothed below.

f^1. Gill rakers on first arch 4+7 or 8; main spine of posttemporal process long and slender, without any trace of spine below it, length of this spine equal to or greater than diameter of pupil; space between anal and subcaudal series of organs less than width of 3 subcaudal organs; anal photophores about 11 to 13. Range: Philippine Islands.

unispinus, new species

f^2. Gill rakers 7 or 8+14 to 16; main spine of posttemporal process short and heavy, its length less than diameter of pupil; space between anal and subcaudal series of organs greater than width of 3 subcaudal organs; anal photophores about 11 or 12. Range: Pacific (Hawaiian Islands; south of Minamitori Shima, Marcus Islands).

nuttingi Gilbert, 1905

POLYIPNUS LATERNATUS Garman, 1899

Polyipnus laternatus Garman, Mem. Mus. Comp. Zool., vol. 24, p. 238, 1899.—?Fraser-Brunner, Ann. Mag. Nat. Hist., ser. 10, vol. 8, p. 218, 1931.—Parr, Bull. Bingham Oceanogr. Coll., vol. 3, no. 7, p. 55, fig. 22, 1937.

POLYIPNUS SPINOSUS Günther, 1887

Polyipnus spinosus Günther, *Challenger* Reports, vol. 22, p. 170, pl. 51, 1887 (depth 250 fathoms, station 200 between Philippine Islands and Borneo).—Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 4, p. 398, 1889.—Wood-Mason and Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 8, p. 126, 1891.—Goode and Bean, Oceanic ichthyology, fig. 148 (reversed fig. of Günther's fig. of type), 1895.—Alcock, Journ. Asiat. Soc. Bengal, vol. 65, p. 331, 1896.—Alcock, A descriptive catalogue of the Indian deep-sea fishes in the Indian Museum, p. 138, 1899.—Brauer, Tiefsee-Expedition . . . *Valdivia*, 1898–1899, vol. 15, p. 120, fig. 64 and figs. 65, 66 (?), 1906 (Gulf of Guinea).—Weber and Beaufort, The fishes of the Indo-Australian Archipelago, vol. 2, p. 130, fig. 47, 1914.—Nichols and Breder, Proc. Biol. Soc. Washington, vol. 37, p. 21, 1924 (*Grampus* station 10482, Gulf of Mexico, lat. 28°52′ N., long. 88°36′ W., depth 500 to 0 meters).—Barnard, Ann. South African Mus., vol. 21, p. 155, 1925.—Fowler, Bull. Amer. Mus. Nat. Hist., vol. 70, p. 240, fig. 112, 1936.—Parr, Bull. Bingham Oceanogr. Coll., vol. 3, no. 7, p. 55, 1937.

Polyipnus stereope Jordan and Starks, Bull. U. S. Fish Comm., vol. 22 (for 1902), p. 581, 1904 (type: U. S. N. M. no. 51451; *Albatross* station 3698, Sagami Bay, Japan).—Jordan, Tanaka, and Snyder, Journ. College Sci. Imp. Univ. Tokyo, vol. 33, no. 1, p. 52, fig. 30, 1913.

Polyipnus tridentifer McCulloch, Biol. Results Fish Expt. F. I. S. *Endeavour*, 1909–1914, vol. 2, pt. 3, pp. 78, 87–89, pl. 16, 1914.

I have examined Jordan and Stark's type of *P. stereope* and found it to agree closely with a sketch of the posttemporal spine of Günther's type; the sketch was kindly furnished by J. R. Norman, of the British Museum.

The following specimens are in the collections of the United States National Museum: U.S.N.M. no. 44429, one specimen, length 43 mm, H. M. S. *Investigator*, Andaman Sea; and 52 specimens collected by the steamer *Albatross*, as follows:

U.S.N.M. no. 102980, 2 specimens, lengths 29 and 36 mm, station 4897, Goto Islands, latitude 32°33′ N., longitude 128°19′ E., depth 207 fathoms, August 10, 1906.

U.S.N.M. no. 102981, 2 specimens, 39 and 43 mm, station 4913, latitude 31°39′10″ N., longitude 129°22′30″ E., 391 fathoms, August 12, 1906.

U.S.N.M. no. 102982, 2 specimens, 52 and 55 mm, station 4967, latitude 33°25′10″ N., longitude 135°37′20″ E., 244 fathoms, August 29, 1906.

U.S.N.M. no. 103036, 2 specimens, 48 and 50 mm, station 5221, latitude 13°38′15″ N., longitude 121°48′15″ E., 193 fathoms, April 24, 1908.

U.S.N.M. no. 103039, 1 specimen, bad condition, station 5280, latitude 13°55′20″ N., longitude 120°25′55″ E., 193 fathoms, July 17, 1908.

U.S.N.M. no. 103032, 1 specimen, 49 mm, station 5113, latitude 13°51′30″ N., longitude 120°50′30″ E., 159 fathoms, January 17, 1908.

U.S.N.M. no. 103033, 1 specimen, 37 mm, station 5171, latitude 5°05′ N., longitude 119°28′ E., 250 fathoms, February 28, 1908.

U.S.N.M. no. 103034, 1 specimen, 44 mm, station 5179, latitude 12°38′15″ N., longitude 122°12′30″ E., 37 fathoms, April 9, 1908.

U.S.N.M. no. 103035, 1 specimen, 29 mm, station 5261, latitude 12°30′55″ N., longitude 121°34′24″ E., 56 fathoms, June 4, 1908.

U.S.N.M. no. 103038, 1 specimen, 48 mm, station 5270, latitude 13°35′45″ N., longitude 120°58′30″ E., 235 fathoms, June 8, 1908.

U.S.N.M. no. 103040, 1 specimen, 50 mm, station 5281, latitude 13°52′45″ N., longitude 120°25′ E., 201 fathoms, July 18, 1908.

U.S.N.M. no. 103041, 1 specimen, 44 mm, station 5291, latitude 13°29′40″ N., longitude 121°00′45″ E., 173 fathoms, July 23, 1908.

U.S.N.M. no. 103042, 1 specimen, 21 mm, station 5293, latitude 13°28′15″ N., longitude 121°04′30″ E., 180 fathoms, July 23, 1908.

U.S.N.M. no. 103043, 10 specimens, 10 to 56 mm, station 5363, latitude 13°47′20″ N., longitude 120°43′30″ E., 180 fathoms, February 20, 1909.

U.S.N.M. no. 103044, 1 specimen, 38 mm, station 5374, latitude 13°46′45″ N., longitude 121°35′08″ E., 180 fathoms, March 2, 1909.

U.S.N.M. no. 103045, 1 specimen, 54 mm, station 5388, latitude 12°51′30″ N., longitude 123°26′15″ E., 226 fathoms, March 11, 1909.

U.S.N.M. no. 103046, 3 specimens, 45 to 54 mm, station 5409, latitude 10°38′ N., longitude 124°13′08″ E., 385 fathoms, March 18, 1909.

U.S.N.M. no. 103047, 1 specimen, 42 mm, station 5419, latitude 9°58′30″ N., longitude 123°46′ E., 175 fathoms, March 25, 1909.

U.S.N.M. no. 103048, 1 specimen, 53 mm, station 5442, latitude 16°30′36″ N., longitude 120°11′06″ E., 45 fathoms, May 10, 1909.

U.S.N.M. no. 103049, 1 specimen, 45 mm, station 5503, latitude 8°36′26″ N., longitude 124°36′08″ E., 226 fathoms, August 4, 1909.

U.S.N.M. no. 103050, 1 specimen, 65 mm, station 5537, latitude 9°11′00″ N., longitude 123°23′00″ E., 254 fathoms, August 19, 1909.

U.S.N.M. no. 103051, 3 specimens, 45 to 59 mm, station 5538, latitude 9°08′15″ N., longitude 123°23′20″ E., 256 fathoms, August 19, 1909.

U.S.N.M. no. 103052, 3 specimens, 36 to 43 mm, station 5563, latitude 5°48′12″ N., longitude 120°30′48″ E., 224 fathoms, September 2, 1909.

U.S.N.M. no. 103053, 1 specimen, 34 mm, station 5569, latitude 5°33′15″ N., longitude 120°15′30″ E., 303 fathoms, September 22, 1909.

U.S.N.M. no. 103054, 1 specimen, 59 mm, station 5589, latitude 4°12′10″ N., longitude 118°38′08″ E., 260 fathoms, September 29, 1909.

U.S.N.M. no. 103055, 1 specimen, 63 mm, station 5590, latitude 4°10′50″ N., longitude 118°39′35″ E., 310 fathoms, September 29, 1909.

U.S.N.M. no. 103056, 2 specimens, 39 and 40 mm, station 5592, latitude 4°12′44″ N., longitude 118°27′44″ E., 305 fathoms, September 29, 1909.

U.S.N.M. no. 103057, 1 specimen, 57 mm, station 5593, latitude 4°02′40″ N., longitude 118°11′20″ E., 38 fathoms, September 29, 1909.

U.S.N.M. no. 103058, 2 specimens, 57 and 63 mm, station 5621, latitude 0°15′00″ N., longitude 127°24′35″ E., 298 fathoms, November 28, 1909.

U.S.N.M. no. 103059, 1 specimen, 55 mm, station 5662, latitude 5°43′00″ S., longitude 119°18′00″ E., 211 fathoms, December 21, 1909.

U.S.N.M. no. 103037, 1 specimen, 50 mm, station 5267, latitude 13°42′20″ N., longitude 120° 58′25″ E., 170 fathoms, June 8, 1908.

POLYIPNUS FRASERI Fowler, 1934

Polyipnus fraseri Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, p. 257, fig. 19, 1934 (type, U. S. N. M. no. 92324, examined by the author).—Parr, Bull. Bingham Oceanogr. Coll., vol. 3, no. 7, p. 55, 1937.

The correct catalog number for the type in the United States National Museum is 92324 and not as published. The correct locality is *Albatross* station 5476, which is in latitude 12°56′24″ N., longitude 124°25′24″ E., and not as published. On Fowler's page 258, second paragraph, and fig. 19, p. 254, it is stated in the original description "no adipose fin." However, when the type was immersed in alcohol the small adipose fin showed up clearly. In fact all the species of this genus have a small adipose fin.

POLYIPNUS NUTTINGI Gilbert, 1905

Polyipnus nuttingi Gilbert, Bull. U. S. Fish Comm., vol. 23 (for 1903), pt. 2, p. 609, pl. 73, 1905 (type, U. S. N. M. no. 51599, examined by the author, *Albatross* station 4088, Pailolo Channel between Molokai and Maui, 297 to 306 fathoms).

Polyipnus spinosus (non Günther) Gilbert and Cramer, Proc. U. S. Nat. Mus., vol. 19, p. 416, 1897 (U. S. N. M. no. 51593, cotypes, 33 specimens, 34 to 70 mm, *Albatross* station 4102, between Maui and Molokai Islands, Hawaii, 122 to 132 fathoms, July 23, 1902).

U. S. N. M. no. 47720, one specimen, 41 mm, *Albatross* station 3476, latitude 21°09′ N., longitude 157°53′ W., December 6, 1891.

Genus ARGYROPELECUS Cocco

Argyropelecus *Cocco, Arch. Accad. Peloritano, 1829, p. 146 (*A. hemigymnus* Cocco).

Pleurothyris *Lowe, A history of the fishes of Madeira, p. 64, 1843 (*Sternoptyx olfersii* Cuvier).

This genus may be recognized by the following characters: A distinct dorsal blade in front of the soft dorsal fin; no pair of spines just anterior to the origin of soft dorsal fin; 12 abdominal photophores; 6 supra-abdominal photophores; the lateral photophore is lacking, and 2 suprapectoral photophores; anal fin divided.

Argyropelecus elongatus Esmark (1871 p. 489) is too briefly described to be recognized. After examining the very inadequate descriptions and poor figure of *Argyropelecus bocagei* (Osorio, 1909, pp. 27–28, pl. 2, fig. 3; Seabra, 1911, p. 176; and Nobre, 1935, p. 350) I agree with Norman (1930) that it is unrecognizable.

SYNOPSIS OF THE SPECIES OF ARGYROPELECUS

a^1. No spine present at posterior end of abdomen below insertion of pelvic fins; photophores forming a nearly continuous series from behind pectoral to base of caudal fin; depth of body 1.8 to 2 and head 3.5 to 3.75 times in standard length (tip of snout to base of caudal fin rays); preopercle at

lower angle with one spine, which is nearly straight or a little curved outward and directed ventrally and above which is a very small one directed outward; greatest height of dorsal blade less than 1 time in base of soft dorsal and about 2.2 times in length of its own base. Range: Tropical Atlantic, off Africa----------gigas Norman, 1930

a^2. One or more spines (usually 1 or 2) located at posterior end of abdomen below insertion of pelvic fins.

b^1. Photophores forming a nearly continuous series from behind pectoral to base of caudal fin; posterior abdominal spines 2, of about equal length and directed downward; depth of body 2.2 to 2.6, head 3.2 to 3.5 times in standard length; preopercle at lower angle with 1 spine, straight or a little curved outward, directed downward, above which is a smaller one directed outward but not extending past rear margin of preopercle; height of dorsal blade 2.8 to 3.3 times in length of its base; no subcaudal spines; gill rakers 7 or 8 + 11 or 12. Range: Atlantic (West Indies; Caribbean; off Strait of Gibraltar; southern tip of Africa), Indian Ocean----------affinis Garman, 1899

b^2. Photophores not forming an almost continuous series but with spaces between the various groups as follows: Above insertion of pelvics, over first 1 to 3 or 4 anal rays, and anterior portion of caudal peduncle, sometimes including last few anal rays.

c^1. A single spine at posterior angle of abdomen.

d^1. Abdominal spine serrated and directed backward (often a minute spinule above its base posteriorly); depth of body 1.7 to 1.9, head 3.1 to 3.5 times in standard length; preopercle at lower angle with an almost straight spine directed downward, upper spine directed outward and backward, with tip extending past rear margin of bone; subcaudal spines absent; gill rakers more numerous than in any other species, about 9 to 11 + 11 to 14, totaling 20 to 25; dorsal soft rays usually 8. Range: Pacific (Hawaiian Islands; Philippine Islands; New Zealand?), Atlantic (West Indies; Bermuda; off South Carolina; Mediterranean; Central Atlantic; South Atlantic), Indian Ocean----------hemigymnus Cocco, 1829

d^2. Abdominal spine smooth and directed downward and usually curved a little forward; depth of body 1.2 to 1.4, head 3.1 to 3.5 times in standard length; preopercle at lower angle with one spine pointing straight downward and curved a little outward, the upper spine small, pointing outward, its tip not extending past rear margin of preopercular bone; subcaudal spines present in adults in front of subcaudal organs and below them; gill rakers 7 or 8 + 8 to 10, totaling 16 or 17; height of dorsal blade 1 to 1.5 times in length of its base; dorsal soft rays usually 9. Range: Atlantic (West Indies: Bahamas; off New Jersey, New York, and Cape Cod), South Pacific (Lord Howe Island)----------amabilis (Ogilby, 1888)

c^2. A pair of smooth spines at posterior angle of abdomen; gill rakers 7 to 9+8 to 10.

e^1. Postabdominal spine longer than anterior spine of pair of abdominal spines and directed backward, the two spines diverging at an angle of about 90° or a little more; adults with the dorsal and abdominal ridges serrated; adults with a double series of spines on lower edge of caudal peduncle; height of dorsal blade 1.3 to 1.5 in length of its base; lower preopercular spine directed straight downward and curved a little outward, upper spine small, its tip not extending past rear margin of preopercle. Range: Atlantic

(off Cape Cod, New Jersey, and Virginia; Grand Banks; North Sea; Gulf of Mexico; West Indies; off South African coast), Indian Ocean; Pacific (Philippine Islands).

aculeatus Cuvier and Valenciennes, 1850

e^2. Postabdominal spine about equal in length to anterior spine, the two spines diverging at an angle of about 45° to 50°; dorsal and abdominal ridges smooth; no spines on ventral margin of caudal peduncle.

f^1. Lower preopercular spine pointing downward, curved slightly forward and outward, the upper very small or absent, its tip not extending past rear margin of preopercle in adults; depth of body about 1.5 times in standard length; height of dorsal blade 1 to 1.4 times in length of its base. Range: Pacific (Baja California; off Panama), Atlantic (off New Jersey and off South Carolina), Indian Ocean----------olfersii (Cuvier, 1829)

f^2. Lower preopercular spine straight, directed downward and often a little curved outward but not forward, the upper of moderate size, directed outward and backward, its tip extending past rear margin of preopercular bone; depth of body 1.3 to 1.7 times in standard length; height of dorsal blade 1.7 to 2.3 times in length of its base. Range: Pacific (off Panama; Philippines; off southern Japan), North and South Atlantic, Antarctic, Indian Ocean----------sladeni Regan, 1908

ARGYROPELECUS GIGAS Norman, 1930

Argyropelecus gigas Norman, *Discovery* Reports, vol. 2, p. 302, fig. 10, 1930.—Jespersen, *in* Joubin, Faune ichthyologique de l'Atlantique nord, no. 15, 1934.—Fowler, Bull. Amer. Mus. Nat. Hist., vol. 70, p. 1208, 1936.—Parr, Bull Bingham Oceanogr. Coll., vol. 3, art. 7, p. 49, 1937.

ARGYROPELECUS AFFINIS Garman, 1899

Argyropelecus hemigymnus (non Cocco) Wood-Mason and Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 8, p. 126, 1891.

Argyropelecus hemigymnus (non Cocco) Goode and Bean, Oceanic ichthyology, pl. 39, fig. 147, 1895.

Argyropelecus affinis Garman, Mem. Mus. Comp. Zool., vol. 24, p. 237, 1899.—*Brauer, Sitz. Ges. Beförd. Naturw. Marburg, 1901, p. 120, fig. 1.—Brauer, Tiefsee-Expedition . . . *Valdivia*, vol. 15, p. 103, pl. 7, figs. 1, 2, 1906.—Regan, Trans. Linn. Soc. Zool., vol. 12, p. 218, 1908.—Murray and Hjort, The depths of the ocean, p. 612, pl. 2, 1912.—Jespersen, Report on the Danish Oceanographical Expeditions, 1908–1910, vol. 2, A. 2, p. 6, 1915.—Barnard, Ann. South African Mus., vol. 21, p. 152, pl. 8, fig. 1, 1925.—Townsend and Nichols, Bull. Amer. Mus. Nat. Hist., vol. 52, p. 11, 1925.—Norman, *Discovery* Reports, vol. 2, p. 301, fig. 9, 1930.—Roule and Angel, Résult. Campagnes Sci. Prince de Monaco, fasc. 86, p. 46, 1933.—Jespersen, *in* Joubin, Faune ichthyologique de l'Atlantic nord, no. 15, 1934.—Fowler, Bull. Amer. Mus. Nat. Hist., vol. 70, p. 246, fig. 115; p. 1208, 1936.—Parr, Bull. Bingham Oceanogr. Coll., vol. 3, art. 7, p. 49, 1937.

Specimens in the National Museum as follows:

U.S.N.M. no. 102776, length 39 mm, First Johnson-Smithsonian Deep-sea Expedition, 1933, tin tag no. 186, station 33, latitude 18°24′15″ N., longitude 67°17′50″ W., to latitude 18°26′40″ N., longitude 67°14′ W., February 9, 1933, 180 to 360 fathoms.

U.S.N.M. no. 102778, 25 mm, First Johnson-Smithsonian Expedition, 1933, tin tag no. 515, station 83, latitude 18°32′54″ N., longitude 65°23′42″ W., to latitude 18°32′15″ N., longitude 65°18′45″ W., 250 to 320 fathoms, February 26, 1933.

U.S.N.M. no. 44593, 32 mm, *Albatross* station 2117, latitude 15°24′40″ N., longitude 63°31′30″ W., 683 fathoms, January 27, 1884.

U.S.N.M. no. 87563, 42 mm, *Albatross* station 5686, SW. of Abreojos Point, 26°14′ N., 114° W., 930 fathoms, April 22, 1911.

ARGYROPELECUS HEMIGYMNUS Cocco, 1829

Argyropelecus hemigymnus *Cocco, Arch. Accad. Peloritano, 1829, p. 146.—*Cocco, Giorn. Sci. Lett. Sicilia, vol. 26, fasc. 77, p. 146, 1829.—Cocco, Isis, vol. 24, p. 1342, 1831.—Bonaparte, Iconografia della fauna italica per le quattro classi degli animali vertebrati, vol. 3, fasc. 28, pl. 121, fig. 3, 1840.—Cuvier and Valenciennes, Histoire naturelle des poissons, vol. 22, p. 398, 1849.—Günther, Catalogue of the fishes in the British Museum, vol. 5, p. 385, 1864.—Canestrini, Pesci d'Italia, *in* Cornalia's Fauna d'Italia, pt. 3, p. 119, 1870.—Doderlein, Atti Accad. Sci. Palermo, new ser., vol. 6, p. 54, 1879.—Leydig, Die augenähnlichen Organe der Fische, p. 26, pl. 1, fig. 5, 1881.—Moreau, Histoire naturelle des poissons de la France, vol. 3, p. 498, 1881.—Facciolà, Natural. Siciliano, vol. 2, p. 206, 1883.—Goode and Bean, Bull. Mus. Comp. Zool., vol. 10, p. 220, 1883.—Giglioli, 3d Congr. Geogr. Internaz., Venice, 1881, vol. 5, pp. 195, 199, 207, 1884.—Vinciguerra, Ann. Mus. Civ. Storia Nat. Genova, ser. 2a, vol. 2, p. 469, 1885.—Günther, Report . . . voyage of the H. M. S. *Challenger*, vol. 22, pt. 57, p. 167, 1887.—Jordan, Rep. U. S. Comm. Fish and Fisher., vol. 13 (for 1885), p. 833, 1887.—Vaillant, Expéditions scientifiques du *Travailleur* et du *Talisman*. . . , Poissons, p. 103, 1888.—Lütken, Spolia Atlantica, ser. 6, vol. 7, p. 283, 1892.—Carus, Prodromus faunae Mediterraneae, vol. 2, p. 568, 1893.—Goode and Bean, Oceanic ichthyology, p. 126 (in part; non fig. 147), 1895.—Alcock, Journ. Asiat. Soc. Bengal, vol. 65, p. 331, 1896.—Jordan and Evermann, U. S. Nat. Mus. Bull. 47, pt. 1, p. 604, 1896.—Alcock, A descriptive catalogue of the Indian deep-sea fishes in the Indian Museum, p. 135, 1899.—Handrick, Zoologica (Stuttgart), pt. 32, pp. 1–68, 6 pls., 1901.—Lo Bianco, Mitt. Zool. Stat. Neapel, vol. 16, nos. 7–9, pp. 126, 127, 129, 131, 132, 135, 138–141, 161, 1903.—Collett, Forh. Vid.-Selsk. Christiania, 1903, no. 9, p. 110, 1904.—*Bragança, Cat. Coll., p. 40, 1903.—Brauer, Tiefsee Expedition. . . *Valdiva*, vol. 15, p. 106, fig. 45, 1906.—Regan, Trans. Linn. Soc. Zool., vol. 12, p. 219, 1908.—Seabra, Bull. Soc. Portugaise Sci. Nat., vol. 5, fasc. 3, p. 176, 1911.—Zugmayer, Résult. Campagnes Sci. Prince de Monaco, fasc. 35, p. 51, 1911.—Murray and Hjort, The depths of the ocean, pp. 604, 612, 618, 643, 698, fig. 458, 1912.—Holt and Byrne, Fisher. Ireland Sci. Invest. 1912, no. 1, pp. 18–19, 21, figs. 7b, 8, 1913.—Pappenheim, Deutsche Südpolar Expedition, 1901–1903, vol. 15 (Zool. Abth. 7, p. 182, 1914).—Jespersen, Report on the Danish Oceanographic Expeditions, 1908–1910, vol. 2, A. 2, p. 7, 1915.—Roule, Résult. Campagnes Sci. Prince de Monaco, fasc. 52, p. 25, 1919.—Barnard, Ann. South African Mus., vol. 21, p. 153, 1925.—Jespersen and Tåning, Report on the Danish Oceanographic Expeditions, 1908–1910, vol. 2, A. 12, p. 48, 1926.—Norman, *Discovery* Reports, vol. 2, p. 303, pl. 2, fig. 4, 1930.—Borodin, Bull. Mus. Comp. Zool., vol. 72, p. 68, 1931.—Zugmayer, Résult. Campagnes Sci. Prince de Monaco, fasc. 86, p. 80, 1933.—Parr, Bull. Bingham Oceanogr. Coll., vol. 4, art. 6, p. 5, 1934.—*Noronha and Sarmento, Peixes Madeira, p. 117, 1934.—Jespersen, *in* Joubin, Faune ichthyologique

de l'Atlantique nord, no. 15, 1934.—Nobre, Faune marinha de Portugal, vol. 1, p. 351, 1935.—Fowler, Bull. Amer. Mus. Nat. Hist., vol. 70, p. 245, 1936.—Parr, Bull. Bingham Oceanogr. Coll., vol. 3, art. 7, pp. 49, 53, fig. 18 (3), 1937.—Norman, British, Australia, and New Zealand Antarctic Research Expedition, 1929–1931, Rept. Ser. B (Zool. Bot.), vol. 1, no. 2, p. 82, 1937.

Sternoptix mediterranea Cocco, Giorn. Il Faro, vol. 4, anno 6, p. 7, figs. 2a, 2b, opposite p. 16, 1838 (*Argyropelecus emigymnus* is the spelling used by Cocco, 1838, for a synonym of *S. mediterranea*).—Bonaparte, Iconografia della fauna italica per le quattro classi degli animali vertebrati, vol. 3, fasc. 28, pl. 121, fig. 3, 1840.

?*Argyropelecus d'urvillei* Cuvier and Valenciennes, Histoire naturelle des poissons, vol. 22, p. 405, 1850.—Günther, Catalogue of the fishes in the British Museum, vol. 5, p. 386, 1864.—Goode and Bean, Oceanic ichthyology, p. 127, 1895.

Argyropelecus intermedius Clarke, Trans. Proc. New Zealand Inst., vol. 10 (for 1877), p. 244, pl. 6, 1878.

Argyropelecus hcathi Gilbert, Bull. U. S. Fish. Comm., vol. 23 (for 1903), pt. 2, p. 601, pl. 72, fig. 1, 1905 (U.S.N.M. no. 51632, type, examined by author).—Jordan and Jordan, Mem. Carnegie Mus., vol. 10, no. 1, p. 9, 1922.—Fowler, Fishes of Oceania, vol. 10, p. 35, 1928.

Argyropelecus "lychnus" (non Garman) Lendenfeld, Mem. Mus. Comp. Zool., vol. 30, p. 170, pl. 6, figs. 24, 25, 1905.

The following 35 specimens were collected by the First Johnson-Smithsonian Deep-sea Expedition, 1933, in the vicinity of the West Indies:

U.S.N.M. no. 102779, 5 specimens, length about 5 to 9 mm, tin tag no. 328, station 62, latitude 19°25′45″ N., longitude 69°09′00″ W., to latitude 19°27′45″ N., longitude 69°14′45″ W., depth about 350 fathoms, February 18, 1933.

U.S.N.M. no. 102780, 8 specimens, about 8 to 21 mm, tin tag no. 494, station 86, latitude 19°30′30″ N., longitude 65°14′00″ W., to latitude 19°18′30″ N., longitude 65°16′00″ W., about 350 fathoms, February 27, 1933.

U.S.N.M. no. 102781, 3 specimens, about 15 to 20 mm, tin tag no. 498A, station 87, latitude 19°18′30″ N., longitude 65°16′00″ W., to latitude 19°13′00″ N., longitude 65°16′00″ W., about 350 fathoms, February 27, 1933.

U.S.N.M. no. 102782, 8 specimens, about 7 to 14 mm, tin tag no. 176, station 30, latitude 18°40′30″ N., longitude 66°30′00″ W., to latitude 18°40′30″ N., longitude 66°36′15″ W., about 1,200 fathoms, February 8, 1933.

U.S.N.M. no. 102783, 1 specimen, length 19 mm, tin tag no. 461, station 85, latitude 18°39′30″ N., longitude 65°16′55″ W., to latitude 18°44′00″ N., longitude 65°16′15″ W., about 400 fathoms, February 26, 1933.

U.S.N.M. no. 102784, 2 specimens, 13 and 20 mm, tin tag no. 452, station 84, latitude 18°32′30″ N., longitude 65°18′30″ W., to latitude 18°39′00″ N., longitude 65°17′00″ W., about 300 to 350 fathoms, February 26, 1933.

U.S.N.M. no. 102785, 2 specimens, 21 and 27 mm, the larger fish has tag no. 510, the other 511, station 83, latitude 18°32′54″ N., longitude 65°23′42″ W., to latitude 18°32′15″ N., longitude 65°18′45″ W., about 250 to 320 fathoms, February 26, 1933.

U.S.N.M. no. 102786, 6 specimens, about 4 to 11 mm, tin tag no. 24C, station 5, latitude 18°37′00″ N., longitude 66°24′30″ W., about 600 fathoms, January 31, 1933.

The following specimens are also in the collections of the United States National Museum:

U.S.N.M. no. 100526, 1 specimen, 23 mm, *Grampus* station 10182, off Bermuda, latitude 30°27′ N., longitude 66°05′ W., 1,400 to 0 meters, February 19, 1914.

U.S.N.M. no. 100542, 1 specimen, 30 mm, *Grampus* station 10176, off Bermuda, latitude 32°30′ N., longitude 65°48′ W., 750 to 0 meters, February 5, 1914.

U.S.N.M. no. 100341, 1 specimen, 23 mm, *Grampus*, off South Carolina, latitude 32°33′ N., longitude 72°14′ W., 1,100 to 0 meters, January 30, 1914.

U.S.N.M. no. 103022, 1 specimen, 15 mm (bad condition), *Albatross* station 5184, latitude 10°18′30″ N., longitude 122°23′30″ E., 565 fathoms, March 30, 1908.

U.S.N.M. no. 103023, 1 specimen, 13 mm, *Albatross* station 5120, latitude 13°45′30″ N., longitude 120°30′15″ E., 393 fathoms, January 19, 1908.

Three lots of *Argyropelecus* here referred to *hemigymnus* possess more numerous gill rakers and may represent a distinct form of that species. They were taken in the Mediterranean and are listed as follows:

U.S.N.M. no. 40053, 18 specimens in bad condition, 20 to 28 mm, Messina, Italy, November, 1883.

U.S.N.M. no. 92244, 2 specimens, 33 and 35 mm, Ganzirri, Messina, Italy.

U.S.N.M. no. 10143, 2 specimens, one in bad condition, other, length 30 mm, Mediterranean Sea.

ARGYROPELECUS AMABILIS (Ogilby, 1888)

Sternoptychides amabilis Ogilby, Proc. Linn. Soc. New South Wales, ser. 2, vol. 3, p. 1313, 1888.

Argyropelecus olfersii (non Cuvier) Goode and Bean, Oceanic ichthyology, p. 126 (in part), pl. 39, fig. 148a, 1895.—Roule and Angel, Résult. Campagnes Sci. Prince de Monaco, fasc. 86, p. 48, pl. 2, figs. 24, 24a, 1933.

Argyropelecus amabilis McCulloch, Rec. Australian Mus., vol. 14, no. 2, p. 118, pl. 14, fig. 3, 1923.

Argyropelecus antrorsospinus Schultz, Smithsonian Misc. Coll., vol. 91, no. 27, p. 1, fig. 1, 1937.

Argyropelecus micracanthus Parr, Bull. Bingham Oceanogr. Coll., vol. 3, art. 7, p. 52, fig. 21, 1937.

Parr (1937, p. 52, fig. 21) described as new *Argyropelecus micracanthus*, based on a specimen but 13 mm in standard length. During my examination of many more than a hundred specimens of various species of *Argyropelecus* from postlarvae up to large adults, it was observed that the anal, preanal, and subcaudal photophores do not all appear at once but develop gradually, the posterior one forming last. This gradual development of the anal photophores also occurs in the genus *Polyipnus*. Dr. Parr's figure 21 of *A. micracanthus* is obviously taken from a very young *Argyropelecus*, because the anal and subcaudal photophores are in little circular masses which at larger sizes extend a little anteriorly and considerably posteriorly. In con-

sideration of these facts and the lack of any other diagnostic characters, I consider it as a synonym of *A. amabilis*.

The following specimens were examined:

U.S.N.M. no. 102989 (holotype of *A. antrorsospinus*), off Culebra Island, latitude 18°32′54″ N., longitude 65°23′42″ W., to latitude 18°32′15″ N., longitude 65°18′45″ W., February 26, 1933, 250 to 320 fathoms.

U.S.N.M. no. 102987, *Albatross* station 2208, latitude 39°33′00″ N., longitude 71°16′15″ W., August 21, 1884.

U.S.N.M. no. 35561, *Albatross* station 2209, latitude 39°34′45″ N., longitude 71°21′30″ W., August 21, 1884.

U.S.N.M. no. 33393, *Albatross* station 2075, latitude 41°40′30″ N., longitude 66°35′00″ W., September 3, 1883.

U.S.N.M. no. 43855, *Albatross* station 2717, latitude 38°24′ N., longitude 71°13′ W., September 18, 1886.

ARGYROPELECUS ACULEATUS Cuvier and Valenciennes, 1849

Argyropelecus aculeatus Cuvier and Valenciennes, Histoire naturelle des poissons, vol. 22, p. 406, 1849.—Günther, Catalogue of the fishes in the British Museum, vol. 5, p. 386, 1864.—Sauvage, *in* Grandidier, Histoire physique, naturelle et politique de Madagascar, Poissons, vol. 16, p. 483, pl. 48, fig. 5, 1891.—Lütken, Spolia Atlantica, ser. 6, vol. 7, p. 282, 1892.—Goode and Bean, Oceanic ichthyology, p. 127, 1895.—Collett, Forh. Vid.-Selsk. Christiania, 1903, no. 9, p. 108, 1904.—Collett, Zool. Anz., vol. 28, p. 726, 1905.—Brauer, Tiefsee Expedition . . . *Valdivia*, vol. 15, p. 110, fig. 47, 1906.—Regan, Trans. Linn. Soc. London, vol. 12, p. 218, 1908.—Murray and Hjort, The depths of the ocean, pp. 612, 618, 643, 1912.—Jespersen, Report on the Danish Oceanographic Expeditions, 1908–1910, vol. 2, A. 2, p. 27, 1915.—Norman, *Discovery* Reports, vol. 2, p. 303, fig. 11, 1930.—Borodin, Bull. Mus. Comp. Zool., vol. 72, p. 68, 1931.—Zugmayer, Result. Campagnes Sci. Prince de Monaco, fasc. 86, p. 79, 1933.—Jespersen, *in* Joubin, Faune ichthyologique de l'Atlantique nord, no. 15, 1934.—Parr, Bull. Bingham Oceanogr. Coll., vol. 3, art. 7, pp. 47, 50, 53, fig. 18 (1a–1c), 1937.

Sternoptyx acanthurus Cuvier and Valenciennes, Histoire naturelle des poissons, vol. 22, p. 408, 1849.

Argyropelecus olfersii (non Cuvier) Collett, Festskrift H. M. Kong Oscar II ved Regjerings-Jubilaeet 1897, vol. 2, p. 14, 1897.

?*Argyropelecus caninus* Garman, Mem. Mus. Comp. Zool., vol. 24, p. 235, 1899.

Argyropelecus olfersii (non Cuvier) Vladykov and McKenzie, Proc. Nova Scotia Inst. Sci., vol. 19, pt. 1, p. 60, fig. 40, 1935 (based on U. S. N. M. no 33495).

Argyropelecus acanthurus (non Cocco) Fowler, Bull. Amer. Mus. Nat. Hist., vol. 70, pp. 246; 1207, 1936. (Cocco described *Gasteropelecus acanthurus*, 1829, and in Isis, vol. 24, p. 1342, 1831, Cocco states that the species has "A. 30," which is for another species of fish. Therefore, the use of the name *acanthurus* of Cocco by Fowler for species of *Argyropelecus* has no basis, in my opinion.)

The following 9 specimens were examined:

U.S.N.M. no. 102777, 2 specimens, 8 and 13 mm, First Johnson-Smithsonian Deep-Sea Expedition, 1933, tin tag no. 24C, Station 5, latitude 18°37′00″ N., longitude 66°24′30″ W., about 600 fathoms, January 31, 1933.

U.S.N.M. no. 33495, 1 specimen, 18 mm, *Albatross* station 2063, latitude 42°23′00″ N., longitude 66°23′00″ W., August 31, 1883.

U.S.N.M. no. 35467, 1 specimen, 38 mm, *Albatross* station 2195, latitude 39°44′00″ N., longitude 70°03′00″ W., August 5, 1884.

U.S.N.M. no. 38116, specimen badly damaged, Grand Banks, September 3, 1886 (coll. W. A. Wilcox ?).

U.S.N.M. no. 74336, 1 specimen, 33 mm, *Albatross* station 2565, latitude 38°19′20″ N., longitude 60°02′ 30″ W., August 28, 1885.

U.S.N.M. no. 86124, 2 specimens, 12 and 14 mm, *Grampus* station 10445, Gulf of Mexico, January 25, 1917.

U.S.N.M. no. 103024, 1 specimen, 16 mm, *Albatross* station 5246, latitude 6°29′15″ N., longitude 126°18′45″ E., depth not given, May 15, 1908.

ARGYROPELECUS OLFERSII (Cuvier, 1829)

Sternoptyx olfersii Cuvier, Le règne animal, ed. 2, vol. 2, p. 316, 1829.—Düben and Koren, Kungl. Vet.-Akad. Handl., 1844, p. 80, pl. 3, fig. 6, 1844.

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The following specimens examined:

U.S.N.M. no. 35534, 1 specimen, 39 mm, *Albatross* station 2208, latitude 39°33'00" N., longitude 71°16'15" W., August 21, 1884.

U.S.N.M. no. 38211, 1 specimen, 53 mm, *Albatross* station 2728, latitude 36°30'00" N., longitude 74°33'00" W., October 25, 1886.

The recent work by Parr (1937) indicates that *olfersii*, *lynchus*, and *sladeni* each may be distinct species. I have examined many specimens of this general form and have concluded that because of much variation in bodily proportions most of the differences indicated by Dr. Parr do not hold good. Therefore since *lynchus* appears to have a higher dorsal blade and the upper preopercular spine is shorter, it is tentatively placed in the synonymy of *olfersii*.

ARGYROPELECUS SLADENI Regan, 1908

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The following 50 specimens examined, all from *Albatross* stations:

U.S.N.M. no. 57885, 2 specimens, 26 and 46 mm, station 3360, latitude 6°17' N., longitude 82°05' W., 1672 fathoms, February 24, 1891, or station 3395, latitude 7°30'36" N., longitude 78°39' W., 730 fathoms, March 11, 1891.

U.S.N.M. no. 102787, 1 specimen, 39 mm, station 4913, northwest Pacific, latitude 31°39'10" N., longitude 129°22'30" E., 391 fathoms, August 12, 1906.

U.S.N.M. no. 103013, 2 specimens, one 11 mm, other larva, station 5120, latitude 13°45'30" N., longitude 120°30'15" E., depth 393 fathoms, January 21, 1908.

U.S.N.M. no. 103014, 1 specimen in poor condition, station 5185, latitude 10°5'45" N., longitude 122°18'30" E., 638 fathoms, March 30, 1908.

U.S.N.M. no. 103015, 2 specimens, 27 and 34 mm, station 5368, latitude 13°35'30" N., longitude 121°48' E., 181 fathoms, February 23, 1909.

U.S.N.M. no. 103016, 1 specimen, 27 mm, station 5387, latitude 12°54'40" N., longitude 123°20'30" E., 209 fathoms, March 11, 1909.

U.S.N.M. no. 103017, 1 specimen in bad condition, station 5447, latitude 13°28' N., longitude 123°46'18" E., 310 fathoms, June 4, 1909.

U.S.N.M. no. 103018, 4 specimens, 14 to 19 mm, station 5497, latitude 9°7'15" N., longitude 124°59'30" E., 960 fathoms, August 3, 1909.

U.S.N.M. no. 103019, 34 specimens, 7 to 19 mm, station 5500, latitude 8°37'45" N., longitude 124°36'45" E., 267 fathoms, August 4, 1909.

U.S.N.M. no. 103020, 1 specimen, 35 mm, station 5525, latitude 9°12'30" N., longitude 123°44'7" E., 805 fathoms, August 11, 1909.

U.S.N.M. no. 103021, 1 specimen in poor condition, station 5530, latitude 9°26'45" N., longitude 123°38'30" E., depth not given, August 11, 1909.

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